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Impacts of recreational boating in coastal seascapes and implications for management

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ABSTRACT

Kosterhavet National Park, a marine protected area on the Swedish west coast, is a popular destination for tourists and attracts over half a million visitors annually. Many of the tourists arrive by boat, and the natural harbours are frequently visited. Boat presence may affect bottom substrates through anchoring, and pollution could also occur in the form of leaching antifouling paints, fuel residue (PAHs) and litter.
This thesis set out to investigate if there are any lingering impacts resulting from boat tourism in Kosterhavet and suggests management efforts in those cases there are.

Through studies using a video sledge, data from two consecutive years revealed visible anchor traces on soft un-vegetated bottoms, and number of traces were also linked to number of bottom anchoring boats. Furthermore, it was found that visitors engage in bottom anchoring at locations where sensitive habitats like eelgrass and oyster beds are located, which may result in harm to both habitat types.

Sediment samples taken in both natural harbours and small marinas unexpectedly showed presence of long since banned antifouling products like TBT, but also more recently prohibited biocides like irgarol and diuron. This suggests that they are still in use. Moreover, water samples from the area show that the currently used antifouling compound copper, is likely to exceed threshold values set by the Swedish Agency for Marine and Water Management (SwAM) during peak boat season. Concentrations of PAHs were found to be below threshold values for water, but they are also known to have low water solubility and are more likely to be bound to particles.

From the video data, occurrence of seafloor litter was also obtained and data on beach litter from reference sites on the Swedish west coast was downloaded from the OSPAR beach litter database. Seafloor litter, in contradiction to beach litter, was at a much higher degree found to have an origin related to recreational activities. This suggest that beach litter stem from other activities in the park, or are brought to the area by currents.

A threat analysis based on the leisure boat related threats; anchoring, antifouling, PAHs and litter were performed. The threats were analysed with respect to their potential impact on three soft bottom values; eelgrass, oysters and blue mussels. The sum of these threats showed that eelgrass was highly impacted by anchoring, but oysters were more severely affected when all threats were considered.

This type of threat analysis can be of great value to park managers, as they need to make prioritizations regarding how to use their often limited resources.
Based on these finding, it is, among others, suggested that bottom anchoring should not be allowed at locations where eelgrass and oyster beds occur, and that bottom friendly mooring solutions should be made available to avoid negative impact on these habitats.

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